

Appendix D

**INTEC Acid Pit Disposals from
1954 through 1970**

Appendix D

INTEC Acid Pit Disposals from 1954 through 1970

This section augments the reassessment analysis of Acid Pit disposals documented in Section 3.4 of this report and in Section A-3 of Appendix A. Shown in Table D-1 are known disposals made to the SDA Acid Pits. Data in this Table D-1 is based on shipment-specific manifests taken from copies of Chemical Waste Disposal Request and Authorization Forms that were generally designated as IHP 36 forms. In some instances, liquid volumes were reported in gallons while in others they were reported in liters. Shaded entries are those where the actual numbers were inferred from other data.

Table D-1. Acid Pit Shipping Disposal Information.

Disposal Date	Building	Vol. (gal)	Vol. (L)	Liquid Mass (gram)	Composition	Enriched Uranium (gram)	Natural Uranium (gram)	Depleted Uranium (gram)
09-Mar-54	674	N/R ^a	N/R	N/R	Dump...waste acid from Chem...in disposal pit (illegible), radioactivity negligible	—	—	—
05-Apr-54	LB-40	4	—	15,000.0	TBP in hexane	0.4	—	—
05-Apr-54	674	450	—	2,000,000.0	0.16 M Zr3(AlF6)4, 0.23 M H3AlF6, 0.3 M Al(NO3)3	—	100.0	—
12-Apr-54	674	450	—	156,700.0	30 g Al/L, 1.5 M HNO3	—	3400.0	—
12-Apr-54	674	1800	—	N/R	4 dumpsters (assume 450 gal each) acid, not described	—	—	—
12-Apr-54	CPP	—	—	9,080.0	50-55% HF	—	—	—
20-Apr-54	maint.	barrels	500	N/R	Waste acid (assumed 500 L)	—	—	—
26-Apr-54	674	900	—	470,000.0	Raffinates: 30 g Al/L, 1.5 M HNO3	—	382.0	—
26-Apr-54	674	85	—	N/R	80 gal NU in organic solvent, 5 gal kerosene	—	0.0	—
27-Apr-54	CPP	—	35.0	N/R	Alkaline solutions	—	21.4	—
27-Apr-54	LC-4	84	—	N/R	Normal uranium waste solutions	—	317.7	—
28-Apr-54	CF	900	—	N/R	2 dumpsters waste acid	—	—	—
30-Apr-54	602	—	0.5	N/R	U in organic solvent	0.0	—	—
03-May-54	674	950	—	500,000.0	30 g (Al)/L, 1.5 M HNO3	—	1000.0	—
05-May-54	674	475	1798.1	500,000.0	30 g Al/L, 1.5 M HNO3	—	360.0	—
06-May-54	CPP	N/R	N/R	N/R	Various chemical lab waste	—	—	—
07-May-54	LB-23 hood	13.0	N/R	—	SIR-synthetic (Zr, HF); Aqueous Hg, CN, Be; organic solvents (CCl4, Oxine), 5M NaOH	—	—	—
19-May-54	674	475	—	500,000.0	30 g Al/L, 1.5 M HNO3	—	325.0	—
12-May-54	maint.	80	—	N/R	Organic solvent, trace of uranium (est 10 wppm)	—	3.0	—
12-May-54	maint.	5	—	N/R	kerosene	—	—	—
26-May-54	LC-4	47	—	N/R	42 ga. Aqueous, 5 gal organic	—	109.9	—
26-May-54	674	500	—	154,000.0	30 g Al/L, 1 M HNO3	—	265.0	—
28-May-54	674	850	3217.6	N/R	30 g Al/L, 1 M HNO3 plus 0.12 g(U)/L	—	385.5	—

a. N/R denotes no information reported

Table D-1. (continued).

Disposal Date	Building	Vol. (gal)	Vol. (L)	Liquid Mass (gram)	Composition	Enriched Uranium (gram)	Natural Uranium (gram)	Depleted Uranium (gram)
01-Jun-54	674	475	—	154,000.0	30 g Al/L, 1 M HNO3	—	540.0	
08-Jun-54	674	1050	—	N/R	30 g Al/L, 1 M HNO3 plus 2 g(U)/L	—	—	8414.0
09-Jun-54	CPP	2	—	1,808.0	Residue from treatment of final product of MTR fuel processing, mainly celite filter aid	2.8	—	—
09-Jun-54	654	900	—	N/R	Waste acid. "dumpsters": assume 2x450 gal	—	—	—
09-Jun-54	674	N/R	N/R	83,462.0	U-Zr alloy in HF-HNO3	—	172.4	—
10-Jun-54	674	1500	—	N/R	30 g Al/L, 1 M HNO3 plus 2 g(U)/L	—	—	11355.0
11-Jun-54	674	—	150.0	N/R	5% TBP in Amsco + crud, 1.98 g/L of NU	—	297.0	—
22-Jun-54	674	500	—	N/R	30 g(Al)/L, HNO3, 2 g(DU)/L	—	—	3785.0
22-Jun-54	674	500	—	N/R	30 g(Al)/L, HNO3, 2 g(DU)/L	—	—	3785.0
23-Jun-54	674	—	250.0	N/R	30 g Al/L, 1 M HNO3 plus 0.2 g(U)/L	—	18.0	—
25-Jun-54	674	300	—	N/R	30 g(Al)/L, HNO3, 2 g(DU)/L	—	—	2271.0
01-Jul-54	602	N/R	N/R	N/R	(date unclear) waste containers, 0.2 mr/hr	—	—	—
07-Jul-54	674	500	1892.7	N/R	30 g(Al)/L, HNO3, 2 g(DU)/L	—	—	3785.0
30-Jul-54	674	500	—	N/R	30 g Al/L, 1.5 M HNO3 plus 2 g(U)/L	—	—	3785.0
19-Jul-54	674	28	106.0	7,400.0	70% aqueous HF	—	—	—
30-Jul-54	CPP	15	—	N/R	DU waste solutions	—	—	0.8
30-Jul-54	CPP	47	—	N/R	NU waste solutions	—	255.5	—
03-Aug-54	674	500	—	N/R	0.7 g(NU)/L raffinate Al(NO3)2 1.2 M.	—	1341.9	—
13-Aug-54	674	1000	—	N/R	1 M HNO3, 1.2 M Al(NO3)2, 1.7g (NU)/L	—	6539.4	—
27-Aug-54	674	50	189.3	N/R	0.15 g(NU)/L, 50 g(Al)/L, NaOH	—	28.4	—
27-Aug-54	674	25	94.6	N/R	0.12 g(NU)/L, 1 g(Al)/L, NaOH	—	11.4	—
30-Aug-54	674	50	—	N/R	0.59 g(NU)/L, 50 g(Al)/L, Na	—	87.0	—
07-Sep-54	674	363	—	N/R	Normal uranium solution with Zr and F, unrecoverable portion	—	3855.0	—
10-Sep-54	674	1000	—	N/R	2.5 g(NU)/L, 1.2 M Al(NO3)2, HNO3. 2.20 mg/mL.	—	8237.0	—
20-Sep-54	674	50	—	N/R	NU, 3000 g(Al), Na	—	49.0	—
29-Sep-54	CPP	—	21.4	N/R	Liquid wastes, composition not specified	—	—	249.0
29-Sep-54	CPP-PM	N/R	N/R	454,000.0	Anhydrous HF	—	—	—
30-Sep-54	CPP	63	—	N/R	50 gal aqueous with 5 gal carboy rinse (0.71 mg/ml), 13 gal organic	—	113.0	—

Table D-1. (continued).

Disposal Date	Building	Vol. (gal)	Vol. (L)	Liquid Mass (gram)	Composition	Enriched Uranium (gram)	Natural Uranium (gram)	Depleted Uranium (gram)
06-Oct-54	CPP	9	—	N/R	DU waste solutions	—	—	30.9
05-Oct-54	674	500	—	N/R	HNO ₃ , aluminum nitrate 22.8 g(Al)/L, 1.82 g(NU)/L	—	3440.0	—
18-Oct-54	674	1000	—	N/R	2 g (NU)/L, 0.8 M Al(NO ₃) ₃ , HNO ₃ 1M	—	9526.0	—
18-Oct-54	CPP	—	7.0	8,293.0	Organic salvage	0.7	—	—
21-Oct-54	602	2	—	5,306.0	20% TBP in Amsco with 0.02 mg(EU)/ml	0.2	—	—
05-Nov-54	CPP	—	3.0	N/R	UNH solution + Aluminum	—	156.0	—
23-Nov-54	602	17	—	N/R	Uranium waste solutions	—	591.0	—
04-Dec-54	602	—	0.5	N/R	Perchloric acid 1 M, 10% ethyl alcohol	—	2.1	—
13-Dec-54	910	—	40.4	49,100.0	2 M HNO ₃ , 20 g/L of Al(NO ₃) ₂	—	—	94.2
16-Dec-54	CPP	—	19.8	N/R	Uranium ferrocyanide waste	—	35.4	—
16-Dec-54	CPP	—	6.6	N/R	Uranium ferrocyanide waste	—	—	9.6
20-Dec-54	602	4	—	11,255.0	TBP and Amsco with 0.005 g (EU)/ml	0.6	—	—
31-Dec-54	674	N/R	N/R	4,540.0	10 lb. Zr-11 alloy in HF-HNO ₃	—	—	—
31-Dec-54	674	900	—	N/R	Waste acid. "dumpsters": assume 2x450 gal	—	—	—
31-Dec-54	674	55	—	N/R	Leaking barrel of HF. Assume 55 gal	—	—	—
04-Jan-55	CPP	—	47.0	N/R	Misc. laboratory waste with Al, H ⁺ , U	—	21.0	—
17-Jan-55	674	150	—	N/R	Slurry 2M NaOH, 0.5M NaNO ₃ , 3M NaAlO ₂ plus UO ₂ , Fe(OH) ₃ , Al ₂ O ₃	—	990.0	—
17-Jan-55	674	250	—	N/R	Slurry 2M NaOH, 0.5M NaNO ₃ , 3M NaAlO ₂ plus UO ₂ , Fe(OH) ₃	—	—	1932.0
17-Jan-55	602	—	102.0	N/R	83 L aqueous, 19 L organic waste (NU)	—	241.4	—
17-Jan-55	602	—	5.0	N/R	2 L organic, 3 L aqueous waste (DU)	—	—	3.3
17-Jan-55	674	—	20	N/R	1M Al(NO ₃) ₃ , 1M HNO ₃ , 2 g(U)/L, half NU and half DU	—	20.0	20.0
17-Jan-55	602	3	—	4,148.6	TBP and Amsco with 0.03 mg (EU)/ml	0.2	—	—
27-Jan-55	674	1000	—	N/R	0.2 g(DU)/L, 1M sodium aluminate, 0.5M sodium nitrate, 0.5M sodium hydroxide	—	160.0	597.0
31-Jan-55	602	10	—	N/R	Residues (normal U)	—	8.4	—
31-Jan-55	602	2	—	N/R	Residues (depleted U)	—	—	0.2
04-Feb-55	N/R	900	—	N/R	2 tanks acid, not described, assume 450 gal per tank	—	—	—

Table D-1. (continued).

Disposal Date	Building	Vol. (gal)	Vol. (L)	Liquid Mass (gram)	Composition	Enriched Uranium (gram)	Natural Uranium (gram)	Depleted Uranium (gram)	
07-Feb-55	674	—	77.5	85,250.0	NaAlO ₂ , 58.4 g(Al)/L, with 0.02 g(U)/L	—	1.6	—	
16-Feb-55	602	16	—	N/R	Misc. wastes	—	12.3	0.4	
25-Feb-55	602	—	33.4	N/R	UNH waste	—	—	7700.9	
25-Feb-55	CPP	N/R	N/R	31,780.0	Al(NO ₃) ₃ with 9 H ₂ O	—	—	—	
02-Mar-55	674	2.5	—	N/R	Some UAl ₅ in water	—	3.0	—	
02-Mar-55	CPP	N/R	N/R	2,480.0	6 M H ₂ SO ₄ , 0.5 M NaNO ₃ , 2.2 M Al(NO ₃) ₂ , H ₂ O	—	—	—	
03-Mar-55	602	5	—	N/R	130 bottles, each 1 oz to 1 gal, 5 gram U/L in 4 M NaOH and 2 M NaAlO ₂ (est 5 gal total, 5 g(NU)/L)	—	94.6	—	
03-Mar-55	N/R	1790	—	N/R	HNO ₃ , 1.2 M Al(NO ₃) ₃ , 1.7 g(DU)/L	—	—	11518.0	
04-Mar-55	CPP	N/R	N/R	89,000.0	Lab waste solutions, Al, H ⁺ ,	—	120.0	—	
06-Mar-55	N/R	1320	—	N/R	1.4 M HNO ₃ , 1.2 M Al(NO ₃) ₂ , 1.7 g(UO ₂ (NO ₃) ₂)/L	—	—	5131.0	
D-8	09-Mar-55	N/R	1980	—	N/R	HNO ₃ , 1.15 M Al(NO ₃) ₂ , 1.6 g(DU)/L	—	—	11991.0
10-Mar-55	674	900	—	N/R	2 tanks waste acid, assume 450 gal per tank.	—	—	—	
10-Mar-55	CPP	55	208.2	N/R	One drum laboratory uranium waste (assume 55 gal, 5g (NU)/L)	—	1040.9	—	
16-Mar-55	N/R	1900	—	N/R	1.2 M HNO ₃ , 1.2 M Al(NO ₃) ₂ , 1.6 g(DU)/L	—	—	11506.0	
18-Mar-55	N/R	1310	4958.9	N/R	1 M HNO ₃ , 1.2 M Al(NO ₃) ₃ , 1.9 g(DU)/L	—	—	9420.9	
21-Mar-55	602	—	3.6	2,928.0	TBP(assume 20%) in Amsco with 0.1 mg/ml of U	0.4	—	—	
21-Mar-55	602	—	3.2	2,642.0	TBP(assume 20%) in Amsco with 0.1 mg/ml of U	0.4	—	—	
21-Mar-55	602	—	3.8	3,055.0	TBP(assume 20%) in Amsco with 0.1 mg/ml of U	0.4	—	—	
22-Mar-55	674	55	—	36,284.0	HNO ₃ = 35,566 g, NaUr = 300 g, NaUr ₂ O ₇ = 375 g, water = 43 gal	—	13.2	—	
22-Mar-55	674	3	—	N/R	U contaminated water (assume 10 wppm NU)	—	0.1	—	
24-Mar-55	211	—	15.0	—	Miscellaneous analytical wastes, may contain H ⁺ , CN ⁻ , SCN ⁻ , Fe(CN) ₆ , Ba ⁺⁺ , K ⁺ , Cs ⁺ , NO ₃ ⁻ , Cl ⁻ , ClO ₄ ⁻ .	—	12.3	—	
27-Mar-55	CPP-211	—	15.0	10,332.0	Misc. wastes	—	12.3	—	

Table D-1. (continued).

D-9

Disposal Date	Building	Vol. (gal)	Vol. (L)	Liquid Mass (gram)	Composition	Enriched Uranium (gram)	Natural Uranium (gram)	Depleted Uranium (gram)
25-Mar-55	674	55	—	N/R	Waste acid drum. Assume 55 gal	—	—	—
01-Apr-55	674	500	1892.7	N/R	Natural Uranium solution, radiation not detectable (assume 10 wppm)	—	18.9	—
01-Apr-55	674	500	1892.7	N/R	0.3 M acid, 0.5 M aluminum, plus uranium	—	200.0	—
04-Apr-55	CPP	13	—	59,020.0	20 g(Al)/L, H ⁺ , 18 g(NU)/L	—	969.0	—
04-Apr-55	602	7	—	N/R	Misc. wastes	—	16.7	0.1
05-Apr-55	?	8300	—	N/R	Al(NO ₃) ₃ , HNO ₃ , U	—	—	55019.0
10-Apr-55	602	—	1.8	1,358.0	TBP in Amsco with 0.019 mg(EU)/ml	0.0	—	—
11-Apr-55	?	1420	—	N/R	HNO ₃ , 1.2 M Al(NO ₃) ₃ , 2 g(DU)/L	—	—	10007.0
21-Apr-55	602	—	7.0	N/R	4/5% TBP in soltrol, penta ether	—	2.8	1.1
18-May-55	CPP	—	65.5	N/R	aqueous and organic solutions	—	195.7	—
18-May-55	CPP	30	—	27,460.0	0.5 M Zr, 0.7 M Al, 3 M fluoride, 2.1 M nitrate, 0.01 M Cr	—	10.0	—
31-May-55	674	1420	—	N/R	HNO ₃ , 1.2 M Al(NO ₃) ₃ , 2 g(NU)/L	—	4139.0	5868.0
25-May-55	N/R	500	—	N/R	HNO ₃ , 1.3 M Al(NO ₃) ₃ , 2 g(DU)/L	—	—	3785.0
27-May-55	674	500	—	N/R	HNO ₃ , 1.2 M Al(NO ₃) ₃ , 2 g(DU)/L	—	—	4163.5
28-Jun-55	602	—	14.5	N/R	TBP, Amsco, penta ether, hexane	—	10.0	—
30-Jun-55	602	2	—	4,032.0	TBP in Amsco plus 0.15 mg/ml of U	0.7	—	—
05-Jul-55	674	1000	—	N/R	16.63 g(Al)/L, 0.23 M HNO ₃ , U	—	1325.0	—
12-Jul-55	674	2180	—	N/R	1.2M Al(NO ₃) ₂ , 1.0M HNO ₃	—	—	18980.0
20-Jul-55	674	—	66.0	N/R	RaLa waste solution with Ba, Sr, 5 g(Al)/L	—	3709.0	—
29-Jul-55	CPP	N/R	N/R	17,700.0	Waste solutions	—	—	32.0
29-Jul-55	CPP	N/R	N/R	74,800.0	Waste solutions	—	228.0	—
29-Jul-55	CPP	—	11.1	10,297.0	TBP in Amsco, Sn, nitrates, chlorides	0.0	—	—
03-Aug-55	674	1000	—	N/R	HNO ₃ , 1.2 M Al(NO ₃) ₃ , 2 g(DU)/L, of which 75% is classified DU	—	—	7570.0
11-Aug-55	674	100	—	N/R	NaOH, NaNO ₃ , UO ₃ slurry	—	—	49.0
15-Aug-55	602	—	5.6	N/R	Organic waste, 0.16 g/L	0.9	—	—
19-Aug-55	674	500	—	N/R	HNO ₃ , 1.2 M Al(NO ₃) ₃ , 2 g(DU)/L	—	—	3591.0
31-Aug-55	PM-106	40000	151416.0	N/R	1.76 M Al(NO ₃) ₃ , HNO ₃ , NH ₄ NO ₃ , 0.01 M Hg(NO ₃) ₂ , NaNO ₃ [~22162 gal dumped 3-19-56]	460.0	—	—

Table D-1. (continued).

D-10

Disposal Date	Building	Vol. (gal)	Vol. (L)	Liquid Mass (gram)	Composition	Enriched Uranium (gram)	Natural Uranium (gram)	Depleted Uranium (gram)
08-Sep-55	CPP	1025	—	N/R	Chemical waste	—	—	—
08-Sep-55	CPP	410	—	N/R	Chemical waste	—	—	—
09-Sep-55	CPP	—	6000.0	N/R	Chemical waste	—	—	—
09-Sep-55	CPP	1900	—	N/R	Chemical waste	—	—	—
09-Sep-55	CPP	—	11.0	N/R	25% TBP in Amsco	—	5.7	—
10-Sep-55	CPP	—	4650.0	N/R	Chemical waste	—	—	—
10-Sep-55	CPP	1500	—	N/R	Chemical waste	—	—	—
12-Sep-55	CPP	—	5500.0	N/R	Chemical waste	—	—	—
16-Sep-55	CPP	—	4000.0	N/R	Chemical waste	—	—	—
19-Sep-55	CPP	—	3750.0	N/R	kerosene & aqueous sol.	—	—	—
23-Sep-55	602	N/R	N/R	28,410.0	HNO ₃ , 45.96 g(Al)/L, DU	—	—	91.6
10-Oct-55	CPP	900	—	N/R	Chemical waste	—	—	—
11-Oct-55	CPP	6	—	N/R	Chemical waste	—	—	—
19-Oct-55	674	380	—	N/R	1.6 g/L Al(NO ₃) ₃ , 2 g(DU)/L (cal 3.0 g/L).	—	—	4314.9
19-Oct-55	674	120	—	N/R	HNO ₃ , 0.5 M Al(NO ₃) ₃ , 1.0 g(DU)/L	—	—	44.1
08-Nov-55	warm lab, RAF	22.5	N/R	—	—	—	9.2	—
22-Nov-55	CPP	720	—	N/R	Chemical waste	—	—	—
22-Nov-55	CPP	700	—	N/R	Chemical waste	—	—	—
23-Nov-55	GE-ANP- ITS	5000	—	N/R	20% HNO ₃ , 80% water, no radioactivity	—	—	—
23-Nov-55	CPP	870	—	N/R	Chemical waste	—	—	—
23-Nov-55	CPP	700	—	N/R	Chemical waste	—	—	—
25-Nov-55	CPP	820	—	N/R	Chemical waste	—	—	—
25-Nov-55	CPP	820	—	N/R	Chemical waste	—	—	—
25-Nov-55	CPP	750	—	N/R	Chemical waste	—	—	—
25-Nov-55	CPP	850	—	N/R	Chemical waste	—	—	—
25-Nov-55	CPP	850	—	N/R	Chemical waste	—	—	—
26-Nov-55	CPP	780	—	N/R	Chemical waste	—	—	—
29-Nov-55	CPP	800	—	N/R	Chemical waste	—	—	—

Table D-1. (continued).

Disposal Date	Building	Vol. (gal)	Vol. (L)	Liquid Mass (gram)	Composition	Enriched Uranium (gram)	Natural Uranium (gram)	Depleted Uranium (gram)
08-Dec-55	603	1500	—	N/R	Sludge with sodium orthophosphate, strontium chloride, calcium hydroxide, 55 uCi alpha, 480 uCi beta	0.8	—	—
12-Dec-55	CPP	800	—	N/R	Chemical waste	—	—	—
14-Dec-55	CPP	620	—	N/R	Chemical waste	—	—	—
06-Jan-56	601	500	—	1,540,000.0	Amsco, mixed hydrocarbons similar to kerosene, mixed fission products,	0.0	—	—
11-Jan-56	CPP	1000	—	3,100,000.0	Amsco, mixed hydrocarbons similar to kerosene, mixed fission products,	0.0	—	—
17-Jan-56	602	2	—	5,865.0	TBP in Amsco, 0.01 mg(EU)/ml	0.1	—	—
24-Jan-56	CPP RAF	—	10.4	—	TBP, kerosene, EU, acetone-thiocyanate	0.4	0.7	—
02-Feb-56	602	N/R	N/R	52,990.0	NU in HNO3	—	718.4	—
14-Mar-56	602	—	16.0	N/R	TBP, isoctane, CCl4, ethyl alcohol, acetone, Amsco, hexone	—	0.4	—
D-11	22-Mar-56	602	4	—	11,906.0	TBP in Amsco	1.1	—
	10-Apr-56	674	210	—	N/R	TBP, Amsco, penta ether, hexane, to be disposed by burning for fire drills	—	0.1
	24-May-56	CPP - PM	444	1680.0	N/R	0.0235 mg/ml NU in 0.19 N basic aqueous solution	—	39.5
	15-May-56	CPP - PM	—	153.0	N/R	0.715 mg/ml of NU in 0.98 N acid solution	—	109.4
	22-May-56	SS area	1500	5678.1	N/R	12.5% by volume diatomaceous earth, water,	1.3	—
	24-May-56	CPP	450	—	N/R	Dumpster of acid sludge (assume 450 gal, 5 g(NU)/L)	—	8516.3
	29-May-56	603	900	3406.9	N/R	Portion of 1500 gal Filter acid sludge	—	—
	29-May-56	603	900	3406.9	N/R	Portion of 1500 gal Filter acid sludge	—	—
	29-May-56	603	900	3406.9	N/R	Portion of 1500 gal Filter acid sludge	—	—
	31-May-56	603	900	3406.9	N/R	Portion of 1500 gal Filter acid sludge	—	—
	31-May-56	603	900	3406.9	N/R	Portion of 1500 gal Filter acid sludge	—	—
	31-May-56	603	900	3406.9	N/R	Portion of 1500 gal Filter acid sludge	—	—
	31-May-56	603	600	2271.2	N/R	Portion of 1500 gal Filter acid sludge	—	—
	01-Jun-56	603	900	3406.9	N/R	Portion of 1500 gal Filter acid sludge	—	—
	01-Jun-56	603	900	3406.9	N/R	Portion of 1500 gal Filter acid sludge	—	—

Table D-1. (continued).

Disposal Date	Building	Vol. (gal)	Vol. (L)	Liquid Mass (gram)	Composition	Enriched Uranium (gram)	Natural Uranium (gram)	Depleted Uranium (gram)
01-Jun-56	603	900	3406.9	N/R	Portion of 1500 gal Filter acid sludge	—	—	—
04-Jun-56	603	900	3406.9	N/R	Portion of 1500 gal Filter acid sludge	—	—	—
04-Jun-56	603	900	3406.9	N/R	Portion of 1500 gal Filter acid sludge	—	—	—
04-Jun-56	603	900	3406.9	N/R	Portion of 1500 gal Filter acid sludge	—	—	—
04-Jun-56	603	900	3406.9	N/R	Portion of 1500 gal Filter acid sludge	—	—	—
05-Jun-56	603	900	3406.9	N/R	Portion of 1500 gal Filter acid sludge	—	—	—
05-Jun-56	603	900	3406.9	N/R	Portion of 1500 gal Filter acid sludge	—	—	—
06-Jun-56	603	900	3406.9	N/R	Portion of 1500 gal Filter acid sludge	—	—	—
06-Jun-56	603	900	3406.9	N/R	Portion of 1500 gal Filter acid sludge	—	—	—
06-Jun-56	603	900	3406.9	N/R	Portion of 1500 gal Filter acid sludge	—	—	—
06-Jun-56	603	900	3406.9	N/R	Portion of 1500 gal Filter acid sludge	—	—	—
07-Jun-56	603	900	3406.9	N/R	Portion of 1500 gal sludge	—	—	—
07-Jun-56	603	700	2649.8	N/R	Portion of 1500 gal sludge (more water was added, so the total adds up to more than 1500 gal)	—	—	—
12-Jun-56	627	—	14.6	N/R	0.3 g NU in CCl4 and ethyl alcohol, 25% TBP in Amsco, dithizone in CCl4, acetone thiocyanate.	—	0.3	—
12-Jun-56	627	—	2.4	N/R	50 mg of EU in acetone thiocyanate.	0.1	—	—
25-Jun-56	674	30	—	N/R	75% HF	—	—	—
10-Jul-56	602	1	3.8	2,742.0	TBP and Amsco	0.2	—	—
06-Jul-56	CPP	—	22.0	17,000.0	TBP, kerosene, CCl4, ethanol, ammonium thiocyanate	—	10.0	—
20-Jul-56	CPP	12	—	N/R	6 bottles organic waste, 4 mr/hr at surfce (est 2 gal ea, 0.15 mg(NU)/bottle)	—	0.0	—
06-Aug-56	674	500	—	N/R	HNO3, 0.7 M Al(NO3)3, 0.5 g(NU)/L	—	946.0	—
16-Aug-56	674	450	1703.4	—	Dumpster Al(NO3)3 and HNO3 solution (assume 450 gal, 5 g(NU)/L)	—	8516.3	—
30-Aug-56	CPP-RAF	—	13.0	N/R	TBP in Amsco, acetone, CCl4, alcohol.	—	4.0	—
21-Sep-56	CPP	15000	—	N/R	0.55 M Zr, 3.2 M F-, 1.9 M H+, 0.75 M Al, 3.18 M NO3, 0.01 M Cr+++	—	1000.0	—
10-Oct-56	CPP	27.25	103.0	N/R	HNO3, Hg++, Al++, etc., NU	—	775.0	—

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Table D-1. (continued).

Disposal Date	Building	Vol. (gal)	Vol. (L)	Liquid Mass (gram)	Composition	Enriched Uranium (gram)	Natural Uranium (gram)	Depleted Uranium (gram)
26-Oct-56	602	3	—	7,233.0	TBP in Amsco with EU	0.7	—	—
05-Nov-56	601	2000	7570.8	N/R	0.7 M Al(NO ₃) ₃	—	—	—
07-Nov-56	CPP	800	—	N/R	Chemical waste	—	—	—
09-Nov-56	CPP	850	—	N/R	Chemical waste	—	—	—
10-Nov-56	CPP	990	—	N/R	Chemical waste	—	—	—
11-Nov-56	CPP	1011	—	N/R	Chemical waste	—	—	—
12-Nov-56	CPP	758	—	N/R	Chemical waste	—	—	—
13-Nov-56	CPP	340	—	N/R	Chemical waste	—	—	—
14-Nov-56	CPP	192	—	N/R	Chemical waste	—	—	—
15-Nov-56	CPP - SF storage	70	265.0	N/R	Normal uranium solution	—	170.0	—
16-Nov-56	CPP	1000	—	N/R	Chemical waste	—	—	—
17-Nov-56	CPP	790	—	N/R	Chemical waste	—	—	—
18-Nov-56	CPP	600	—	N/R	Chemical waste	—	—	—
19-Nov-56	CPP	800	—	N/R	Chemical waste	—	—	—
20-Nov-56	CPP	550	—	N/R	Chemical waste	—	—	—
21-Nov-56	CPP	550	—	N/R	Chemical waste	—	—	—
22-Nov-56	CPP	683	—	N/R	Chemical waste	—	—	—
23-Nov-56	CPP	540	—	N/R	Chemical waste	—	—	—
25-Nov-56	CPP	782	—	N/R	Chemical waste	—	—	—
28-Nov-56	CPP	800	—	N/R	Chemical waste	—	—	—
30-Nov-56	CPP	660	—	N/R	Chemical waste	—	—	—
03-Dec-56	CPP	798	—	N/R	Chemical waste	—	—	—
06-Dec-56	—	—	17.0	—	300 mg normal U in mixture of CCl ₄ , ethyl alcohol, 25%TBP in amsco, dithizone in CCl ₄ , and acetone-thiocyanate mixture	—	0.3	—
15-Jan-57	CPP	—	32.0	N/R	HNO ₃ , 39.48 g(U)/L, both NU and DU (I assume 50% each)	—	631.8	631.8
06-Feb-57	RAF 627	—	6.0	N/R	5 g NU in ethyl alcohol, 25% TBP in Amsco	—	5.0	—
20-Mar-57	602	2	—	4,550.0	20% TBP in Amsco	—	—	—
28-Mar-57	602	—	5.0	6,250.0	3N HNO ₃ , 22 g/l U	—	203.0	—
10-May-57	CPP	—	30.0	N/R	H ₂ SO ₄ , trace of boron & Al ₂ (SO ₄) ₃	—	5.0	—

Table D-1. (continued).

Disposal Date	Building	Vol. (gal)	Vol. (L)	Liquid Mass (gram)	Composition	Enriched Uranium (gram)	Natural Uranium (gram)	Depleted Uranium (gram)	
10-May-57	CPP	—	14.0	N/R	organic, mainly TBP in hexane, 1 g(NU)/L.(assume 20% TBP)	—	14	—	
22-May-57	674	500	1892.7	N/R	0.56 g(NU)/L, 17.68 g(Al)/L, HNO ₃	—	1060.0	—	
23-May-57	674	500	1892.7	N/R	5-6 molar HNO ₃ in water	—	—	—	
19-Jun-57	CPP	—	370.0	N/R	mixed solutions: TBP-kerosene in HNO ₃ , cupric nitrate, aluminum nitrate, caustic waste solution, ...	—	1161.0	—	
19-Jun-57	627	—	10.0	?	25% TBP in Amsco	—	4.0	—	
08-Jul-57	Project Engr. Cage	N/R	2,200.0	Anhydrous hydrazine (N ₂ H ₄)		—	—	—	
02-Aug-57	602	—	12.0	22,000.0	Conc. H ₂ SO ₄ , NU	—	2.0	—	
02-Aug-57	602	—	5.0	5,000.0	H ₂ SO ₄ , calcium sulfate, EU	5.0	—	—	
14-Sep-57	CPP	1000	—	N/R	Raffinate: 1.95 M Al(NO ₃) ₂ , 2.15 M HNO ₃ , 0.092 M NaNO ₃ , 0.012 M Hg(NO ₃) ₂ , 0.002 g/L U (illegible)	—	—	7.7	
D-14	03-Sep-57	CPP	1100	—	N/R	Raffinate: 1.95 M Al(NO ₃) ₂ , 2.15 M HNO ₃ , 0.092 M NaNO ₃ , 0.012 M Hg(NO ₃) ₂ , 0.002 g/L U	—	—	8.5
	03-Sep-57	CPP	950	—	N/R	Raffinate: 1.95 M Al(NO ₃) ₂ , 2.15 M HNO ₃ , 0.092 M NaNO ₃ , 0.012 M Hg(NO ₃) ₂ , 0.002 g/L U	—	—	7.3
	04-Sep-57	CPP	950	—	N/R	Raffinate: 1.95 M Al(NO ₃) ₂ , 2.15 M HNO ₃ , 0.092 M NaNO ₃ , 0.012 M Hg(NO ₃) ₂ , 0.002 g/L U	—	—	7.3
	11-Sep-57	CPP	950	—	N/R	Raffinate: 1.95 M Al(NO ₃) ₂ , 2.15 M HNO ₃ , 0.092 M NaNO ₃ , 0.012 M Hg(NO ₃) ₂ , 0.002 g/L U	—	—	7.3
	13-Sep-57	reactor floor	10	37.9	N/R	Contaminated oil, 2200 dis/min per ml beta gamma	—	—	—
	14-Sep-57	CPP	1020	—	N/R	Raffinate: 1.95 M Al(NO ₃) ₂ , 2.15 M HNO ₃ , 0.092 M NaNO ₃ , 0.012 M Hg(NO ₃) ₂ , 0.002 g/L U	—	—	7.8

Table D-1. (continued).

Disposal Date	Building	Vol. (gal)	Vol. (L)	Liquid Mass (gram)	Composition	Enriched Uranium (gram)	Natural Uranium (gram)	Depleted Uranium (gram)
14-Sep-57	CPP	900	—	N/R	Raffinate: 1.95 M Al(NO ₃) ₂ , 2.15 M HNO ₃ , 0.092 M NaNO ₃ , 0.012 M Hg(NO ₃) ₂ , 0.002 g/L U	—	—	6.9
14-Sep-57	CPP	950	—	N/R	Raffinate: 1.95 M Al(NO ₃) ₂ , 2.15 M HNO ₃ , 0.092 M NaNO ₃ , 0.012 M Hg(NO ₃) ₂ , 0.002 g/L U	—	—	7.3
15-Sep-57	CPP	1080	—	N/R	Raffinate: 1.95 M Al(NO ₃) ₂ , 2.15 M HNO ₃ , 0.092 M NaNO ₃ , 0.012 M Hg(NO ₃) ₂ , 0.002 g/L U	—	—	8.3
15-Sep-57	CPP	1000	—	N/R	Raffinate: 1.95 M Al(NO ₃) ₂ , 2.15 M HNO ₃ , 0.092 M NaNO ₃ , 0.012 M Hg(NO ₃) ₂ , 0.002 g/L U (illegible)	—	—	7.7
16-Sep-57	CPP	1020	—	N/R	Raffinate: 1.95 M Al(NO ₃) ₂ , 2.15 M HNO ₃ , 0.092 M NaNO ₃ , 0.012 M Hg(NO ₃) ₂ , 0.002 g/L U	—	—	7.8
16-Sep-57	CPP	780	—	N/R	Raffinate: 1.95 M Al(NO ₃) ₂ , 2.15 M HNO ₃ , 0.092 M NaNO ₃ , 0.012 M Hg(NO ₃) ₂ , 0.002 g/L U	—	—	6.0
23-Sep-57	646	3	—	15,000.0	80% nitric, 20% water	—	—	
20-Sep-57	CPP	950	—	N/R	Raffinate: 1.95 M Al(NO ₃) ₂ , 2.15 M HNO ₃ , 0.092 M NaNO ₃ , 0.012 M Hg(NO ₃) ₂ , 0.002 g/L U	—	—	7.3
20-Sep-57	CPP	950	—	N/R	Raffinate: 1.95 M Al(NO ₃) ₂ , 2.15 M HNO ₃ , 0.092 M NaNO ₃ , 0.012 M Hg(NO ₃) ₂ , 0.002 g/L U	—	—	7.3
22-Sep-57	CPP	950	—	N/R	Raffinate: 1.95 M Al(NO ₃) ₂ , 2.15 M HNO ₃ , 0.092 M NaNO ₃ , 0.012 M Hg(NO ₃) ₂ , 0.002 g/L U	—	—	7.3
22-Sep-57	CPP	850	—	N/R	Raffinate: 1.95 M Al(NO ₃) ₂ , 2.15 M HNO ₃ , 0.092 M NaNO ₃ , 0.012 M Hg(NO ₃) ₂ , 0.002 g/L U	—	—	6.5
23-Sep-57	CPP	950	—	N/R	Raffinate: 1.95 M Al(NO ₃) ₂ , 2.15 M HNO ₃ , 0.092 M NaNO ₃ , 0.012 M Hg(NO ₃) ₂ , 0.002 g/L U	—	—	7.3

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Table D-1. (continued).

Disposal Date	Building	Vol. (gal)	Vol. (L)	Liquid Mass (gram)	Composition	Enriched Uranium (gram)	Natural Uranium (gram)	Depleted Uranium (gram)
23-Sep-57	CPP	925	—	N/R	Raffinate: 1.95 M Al(NO ₃) ₂ , 2.15 M HNO ₃ , 0.092 M NaNO ₃ , 0.012 M Hg(NO ₃) ₂ , 0.002 g/L U	—	—	7.1
24-Sep-57	CPP	440	—	N/R	Raffinate: 1.95 M Al(NO ₃) ₂ , 2.15 M HNO ₃ , 0.092 M NaNO ₃ , 0.012 M Hg(NO ₃) ₂ , 0.002 g/L U	—	—	3.4
24-Sep-57	CPP	950	—	N/R	Raffinate: 1.95 M Al(NO ₃) ₂ , 2.15 M HNO ₃ , 0.092 M NaNO ₃ , 0.012 M Hg(NO ₃) ₂ , 0.002 g/L U	—	—	7.3
24-Sep-57	CPP	950	—	N/R	Raffinate: 1.95 M Al(NO ₃) ₂ , 2.15 M HNO ₃ , 0.092 M NaNO ₃ , 0.012 M Hg(NO ₃) ₂ , 0.002 g/L U	—	—	7.3
15-Oct-57	603	938	—	N/R	Aged fission products, 0.003 Ci, 15 mr/hr at surface	—	—	—
17-Oct-57	CPP	564	—	N/R	SS tank, aged fission products, 0.1 Ci, 4 mr/hr at surface, time 09:10	—	—	—
16-Oct-57	CPP	3231	—	N/R	Aged fission products, 0.1 Ci, 15 mr/hr contact, time 9:25	—	—	—
16-Oct-57	CPP	564	—	N/R	Aged fission products in liquid, 20 mr/hr at surface, approx. 0.1 Ci, time 14:30	—	—	—
17-Oct-57	CPP	564	—	N/R	Aged fission products in liquid, 3 mr/hr at surface, approx. 0.1 Ci, time 11:25	—	—	—
17-Oct-57	CPP	564	—	N/R	Aged fission products in liquid, 20 mr/hr at surface, approx. 0.1 Ci, time 14:30	—	—	—
18-Oct-57	CPP	564	—	N/R	SS tank, aged fission products, 0.1 Ci	—	—	—
18-Oct-57	CPP	564	—	N/R	Aged fission products in liquid, 10 mr/hr at surface, approx. 0.1 Ci	—	—	—
21-Oct-57	CPP	950	3596.1	N/R	Portion of 1500 gal sludge	—	—	—
21-Oct-57	settling manhole, S.F. area	1500	—	136,000.0	Sludge, diatomaceous earth, water, 46 mc beta, 18 mc alpha, EU	1.0	—	—
21-Oct-57	646	5	18.9	18,000-20,000	75-80% nitric acid	—	—	—
14-Jan-58	646	5	—	20,000.0	75% nitric acid	—	—	—

Table D-1. (continued).

Disposal Date	Building	Vol. (gal)	Vol. (L)	Liquid Mass (gram)	Composition	Enriched Uranium (gram)	Natural Uranium (gram)	Depleted Uranium (gram)
25-Feb-58	627		2.0	N/R	U-Al alloy in HCl	10.0	—	—
04-Mar-58	646	5	—	20,000.0	75% nitric acid	—	—	—
21-May-58	CPP		83.0	29,582.0	Aqueous depleted+F337 uranium solution	—	2006.3	119.9
24-Jul-58	603	1500	—	N/R	Sludge containing fission products and U-235, alpha and beta emitters, 55 uc(alpha)	—	—	—
25-Jul-58	646	5	—	N/R	75% nitric acid	—	—	—
25-Jul-58	603	900	—	N/R	Sludge, 90 mr/hr at bottom	—	—	—
25-Jul-58	603	900	—	N/R	Sludge, 60 mr/hr at tank	—	—	—
28-Jul-58	603	900	—	N/R	Sludge, 50 mr/hr at contact	—	—	—
28-Jul-58	603	900	—	N/R	Sludge, 50 mr/hr at contact	—	—	—
28-Jul-58	603	900	—	N/R	Sludge, 50 mr/hr at contact	—	—	—
28-Jul-58	603	900	—	N/R	Sludge, 50 mr/hr at bottom	—	—	—
29-Aug-58	646	5	—	6,342.0	75%Nitric Acid	—	—	—
29-Aug-58	646	—	8.0	IIA	90 % nitric	—	—	—
20-Aug-59	CPP	63	238.5	249,700.0	Aqueous waste, 1.5 g(NU)/L, some TBP	—	357.7	—
02-Aug-60	Chem. eng. lab	100	—	N/R	6 m nitric, 0.1 m hydrofluoric, aluminum nitrate, trace Zr	—	—	—
05-Jan-62	CEL	1000	3785.4	N/R	0.8 g/L NU in HNO3	—	774.0	—
03-Apr-64	CPP	—	22.0	25,025.0	0.3 M F, 1.1 M Al; 0.015 M GO3; 0.5 g (Be) per L; 7.7 mg U-235/L	0.2	—	—
03-Apr-64	CPP	—	14.5	13,620.0	50 uCi , 0.0184 g(U-235)/L, F, 1 M Al, ...	0.3	—	—
14-Jan-66	CPP	150	—	681,000.0	1 M NaAlO2, 0.1 M NaOH, 3 M NaCl, 2 M NaNO3, trace U-235 and U-238	2.0	—	—
14-Jan-66	CPP	150	—	681,000.0	1 M NaAlO2, NaOH, NaCl, NaNO3, trace U-235 and U-238	2.0	—	—
06-Dec-67	684	2	—	7,264.0	3 oz/gal CO., 16.5 oz/gal NaCl, 2.6 oz/gal NaOH, no radioactivity	—	—	—
06-Dec-67	684	N/R	N/R	7,520.0	Cyanide	—	—	—
19-Jun-68	CPP	12	—	32,688.0	11M HCl with traces of non-radioactive waste	—	—	—
19-Jan-70	CPP	12 ft3	—	34,050.0	20 bottles HCl	—	—	—
Totals						492.8	82,585.6	211,804.0
Total Volume (L)			1.08E+06		Total grams			

Table D-1. (continued).

Disposal Date	Building	Vol. (gal)	Vol. (L)	Liquid Mass (gram)	Composition	Enriched Uranium (gram)	Natural Uranium (gram)	Depleted Uranium (gram)
Total kg Uranium =							294.9	
a. N/R means that no data were reported for this field.								
b. Shaded entries are those for which actual values were not reported but were inferred from other information provided.								